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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,802	11/21/2003	J. Rodney Walton	030422	3339

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QUALCOMM INCORPORATED
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EXAMINER	
KUMAR, PANKAJ	

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
05/16/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/719,802	WALTON ET AL.	
	Examiner	Art Unit	
	Pankaj Kumar	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 37-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *37-41* is/are allowed.

6)☒ Claim(s) *1-3,8,9,11 and 12* is/are rejected.

7)☒ Claim(s) *4-7,10 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/21/2003, 9/18/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 2, 3, 8, 9, 11, 12 are rejected under 35 U.S.C. 102(a) as being anticipated by Agee USPN 6,512,737.

3. As per claim 1, Agee teaches obtaining, from a plurality of receive antennas at a receiving entity, a plurality of received symbol streams for a plurality of data symbol streams sent by a plurality of transmitting entities (Agee fig. 1: many receivers and transmitters; col. 4 line 57: symbol; fig. 8: symbol 246, 248), one data symbol stream for each transmitting entity, wherein the data symbol stream for each transmitting entity is spatially processed (Agee col. 8 lines 40-42: antennas that each express differential spatial signal sensitivities) with a steering vector for the transmitting entity and sent from a plurality of transmit antennas at the transmitting entity (Agee col. 23 lines 15-17: transmitter antenna array weights equal to Karray * 1 packet steering vector; col. 24 lines 27-28: packet steering vector has dimension Karray vector; hence on steering value for each element of an array); and processing the plurality of received symbol streams in accordance with a receiver spatial processing technique to obtain a plurality of recovered data symbol streams (Agee col. 6 line 66 to col. 7 line 10), which are estimates of the plurality of data symbol streams (Agee: receiver inherently estimates what the transmitter transmitted).

4. As per claim 2, Agee teaches the method of claim 1, wherein the receiver spatial processing technique is a channel correlation matrix inversion (CCMI) technique (Agee fig. 8: 257, fig. 9: 287: correlating via frequency channel bank or matrix and 257 is the inverse of it) or a minimum mean square error (MMSE) technique (Agee col. 24 lines 36-37: mean squared error).

5. As per claim 3, Agee teaches the method of claim 1, wherein the receiver spatial processing technique is a successive interference cancellation (SIC) technique (Agee: successive signals are filtered to remove the interference).

6. Claim 8, 11 is discussed above with respect to claim 1.

7. Claim 9, 12 is discussed above with respect to claim 2.

Allowable Subject Matter

8. Claims 4-7, 10, 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 37-41 are allowed.

10. The art of record does not suggest the respective claim combinations together and nor would the respective claim combinations be obvious with:

11. As per claims 37-39: decomposing the channel response matrix to obtain a plurality of eigenvectors and a plurality of singular values, one eigenvector for each singular value; and deriving the steering vector for the transmitting entity based on an eigenvector corresponding to a largest singular value among the plurality of singular values.

12. As per claim 40: a controller operative to decompose the channel response matrix to obtain a plurality of eigenvectors and a plurality of singular values, one eigenvector for each singular value and to derive the steering vector for the transmitting entity based on an eigenvector corresponding to a largest singular value among the plurality of singular values

13. As per claim 41: decomposing the channel response matrix to obtain a plurality of eigenvectors and a plurality of singular values, one eigenvector for each singular value; and means for deriving the steering vector for the transmitting entity based on an eigenvector corresponding to a largest singular value among the plurality of singular values

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (571) 272-3011. The examiner can normally be reached on Monday through Friday.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Pankaj Kumar
Primary Examiner
Art Unit 2611

PK